



Office of Research and Development

Press

109 T.W. Alexander Drive, Research Triangle Park, NC 27711

Release

For Immediate Release
February 18, 2003

Media Contact:
Ann Brown
919-541-7818

EPA Study Illuminates How Air Pollutants May Cause Heart Damage

RESEARCH TRIANGLE PARK, N.C., --- A manuscript, featured on the front cover of the February issue of Toxicological Sciences, describes a study that provides insight into how exposure to air pollution may cause heart problems in humans. The study, conducted at U.S. EPA's National Health and Environmental Effects Research Laboratory in Research Triangle Park, NC, found that inhalation of combustion-derived particulate matter over a long period of time and at regular weekly intervals can cause heart injury in animals. The long-term exposure to particles, however, did not damage lung tissue or increase levels of fibrinogen, a blood clotting substance that, when elevated, is a risk factor for heart disease.

The study, conducted in collaboration with Harvard University School of Public Health and the National Institute of Environmental Health Sciences, sheds light on how air pollutants may cause illness or death from heart disease and is part of a major research initiative by the EPA to better understand the health effects from particulate matter on susceptible populations such as the elderly and young.

The metal composition of combustion particles used in the study resembled those collected outside in polluted areas. Also, the calculated average daily exposure of particulate matter over the study period was comparable to exposures associated with highly polluted urban environments. Animals prone to heart disease in the study showed heart muscle inflammation, degeneration and scarring when exposed to particulate matter, but no changes when exposed to filtered air. Metals have been suggested as a cause of observed cardiovascular effects in humans from air pollution. Because zinc was the predominant metal in these particles, this study suggests that particle-associated zinc may play a role in heart muscle damage. Additional research is under way to provide further information about the possible health effects of breathing particles containing metals.

Contact: Ann Brown, 919-541-7818.

